

PCT

WORLD INTELLECTUAL PROPERTY ORGANIZATION  
International Bureau



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

|   |  |  |  |
|---|--|--|--|
| (51) International Patent Classification <sup>6</sup> :<br><br><b>G01N 33/487, C12Q 1/00</b>  |  | A2   | (11) International Publication Number: <b>WO 99/45387</b><br><br>(43) International Publication Date: 10 September 1999 (10.09.99) |
| (21) International Application Number: PCT/US99/01392<br><br>(22) International Filing Date: 21 January 1999 (21.01.99)   |  | Oakland, CA 94618 (US). PLANTE, Phillip, J. [US/US]; 268 Monterey Boulevard, San Francisco, CA 94131 (US). VREEKE, Mark, S. [US/US]; 2826 Calhoun Street, Alameda, CA 94501 (US).  |  |
| (30) Priority Data:<br>09/034,372 4 March 1998 (04.03.98) US  |  | (74) Agent: DAIGNAULT, Ronald, A.; Merchant, Gould, Smith, Edell, Welter & Schmidt, P.A., 3100 Norwest Center, 90 South Seventh Street, Minneapolis, MN 55402-4131 (US).   |  |
| (63) Related by Continuation (CON) or Continuation-in-Part (CIP) to Earlier Application<br>US 09/034,372 (CON)<br>Filed on 4 March 1998 (04.03.98)  |  | (81) Designated States: AL, AM, AT, AT (Utility model), AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, CZ (Utility model), DE, DE (Utility model), DK, DK (Utility model), EE, EE (Utility model), ES, FI, FI (Utility model), GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SK (Utility model), SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG). |  |
| (71) Applicant (for all designated States except US): E. HELLER & COMPANY [US/US]; Suite 1000, 1311 Harbor Bay Parkway, Alameda, CA 94502 (US).   |  | <b>Published</b><br>Without international search report and to be republished upon receipt of that report.   |  |
| (72) Inventors; and   |  |  |  |
| (75) Inventors/Applicants (for US only): SAY, James [US/US]; 2800 Pearl Harbor, Alameda, CA 94501 (US). TOMASCO, Michael, F. [US/US]; 22528 Poppy Drive, Cupertino, CA 95014 (US). HELLER, Adam [US/US]; 5317 Valburn Circle, Austin, TX 78731 (US). GAL, Yoram [IL/IL]; P.O. Box 126, 30065 Kibbutz Yagur (IL). ARIA, Behrad [US/US]; 817 Santa Clara Avenue, Alameda, CA 94502 (US). HELLER, Ephraim [US/US]; 44 Stark Knoll Place,   |  |  |  |
| (54) Title: ELECTROCHEMICAL ANALYTE SENSOR  |  |  |  |
| (57) Abstract   |  |  |  |
| <p>An electrochemical analyte sensor formed using conductive traces on a substrate can be used for determining and/or monitoring a level of analyte in <i>in vitro</i> or <i>in vivo</i> analyte-containing fluids. For example, an implantable sensor may be used for the continuous or automatic monitoring of a level of an analyte, such as glucose, lactate, or oxygen, in a patient. The electrochemical analyte sensor includes a substrate and conductive material disposed on the substrate, the conductive material forming a working electrode. In some sensors, the conductive material is disposed in recessed channels formed in a surface of the sensor. An electron transfer agent and/or catalyst may be provided to facilitate the electrolysis of the analyte or of a second compound whose level depends on the level of the analyte. A potential is formed between the working electrode and a reference electrode or counter/reference electrode and the resulting current is a function of the concentration of the analyte in the body fluid.</p> |  |  |  |







































































































































